

CHAPTER 4

TEMPORARY STORAGE (Pre-staging) SITES

Background:

Local governments have identified temporary storage sites as the primary obstacle in establishing a debris management program. Without the ability to stockpile or store the disaster debris until such time as a jurisdiction can turn its attention to processing and marketing the materials, the debris is probably destined for the landfill.

Securing storage sites is best done before a disaster so that arrangements, such as leases and permits for the land, can be accomplished quickly. Given that the immediate response is for lifesaving activities, recycling and diversion programs often become secondary in importance. Having storage sites available in advance gives a jurisdiction additional time to develop diversion strategies and programs to handle the disaster debris.

Contents:

Take the following steps to establish a temporary storage site.

Error ! Book mark not defined.St ep	Topic	Page
1	Determine the need for temporary sites.	4-4
2	Develop criteria to evaluate potential sites.	4-5
3	Identify temporary storage sites.	4-7
4	Review Emergency Waiver of Standard Regulations.	4-8
5	Identify permits or variances required to site a temporary storage site.	4-10
6	Perform environmental review of site.	4-12
7	Develop a Site Development and Operation Plan.	4-13

Temporary Storage Sites

8	Prepare Inspection and Site Management Guidelines.	4-15
9	Prepare a Site Restoration Plan	4-16

General Considerations

Suggestions:

Here are some suggestions to consider in deciding whether to establish a temporary storage site. These are general program considerations that are discussed in more detail in the following steps 1-8.

- ◆ **Consider the availability of processing, recycling, and disposal facilities in the area.** Before a disaster, prepare an inventory of facilities in the area to help determine the need for facilities and to identify those materials which are worth stockpiling and those that probably should be disposed of in a timely manner. The inventory can include factors such as:
 - ◆ existing facilities in the area: source separated, mixed recycling, and disposal;
 - ◆ facilities in neighboring jurisdictions;
 - ◆ materials handled;
 - ◆ processing capacity;
 - ◆ remaining disposal capacity of a disposal facility;
 - ◆ on-site recycling facilities; and
 - ◆ expected storage capacity for disaster debris.
- ◆ **Review the CIWMB emergency waiver of standard regulations.** The emergency waiver of standard regulations allows local enforcement agencies to issue emergency waivers to solid waste facility operators upon request, in the event of a declared state or local emergency. (See section 4 of this chapter for more information).

The waiver grants an operator temporary relief from specific state minimum solid waste standards or terms or conditions of the operator's solid waste facilities permit. A waiver can also be granted to an operator for the establishment of a locally-approved temporary transfer or processing site, if authorized by the local enforcement agency. (See Attachment A for the text of the emergency waiver regulations).

- ◆ **Use temporary storage sites as a last resort.** One can save time and money by taking the materials directly to a recycler/processor and paying for transportation and labor only once.
- ◆ **Using a temporary site may increase costs significantly** if it is used as an intermediate step between clearing the streets and processing/recycling the materials.
 - ◆ FEMA and/or OES may not pay to move the debris twice. If considering this alternative, check with FEMA and OES before establishing the site in order to receive prior authorization.
- ◆ **Consider that there will be costs involved in setting up and closing a temporary site,** and take these into account when estimating the overall program costs.
- ◆ **Consider setting up a site for specific materials,** e.g., those that do not have a significant threat to public health and safety such as concrete, asphalt, brick, metals, dirt, etc.
- ◆ **Start a public education program immediately** to notify the public and contractors of the site, the materials accepted, hours of operation, etc.
- ◆ **Clearly mark the temporary storage area** and post signage so that residents and contractors know the site boundaries and its purpose.
- ◆ **Develop a policy and/or enforcement program** to discourage and prevent illegal dumping, vandalism, and contamination of materials.
 - ◆ Fence the area so prevent illegal dumping and provide some level of security.
 - ◆ Cordon off nearby streets to discourage nuisance or illegal dumping.

☐ **STEP 1: DETERMINE NEED FOR TEMPORARY STORAGE SITES.**

Debris generated:

The information gathered during the preliminary damage assessment immediately after the disaster should give a good indication of the types and amounts of debris to be handled. (See Chapter 16, Federal Public Assistance Program, for a discussion of damage survey assessments).

Based on this information, a jurisdiction should be able to determine whether the existing recycling facilities and landfills have sufficient capacity for the expected volumes of debris. If sufficient capacity is not available, a jurisdiction will need to make other plans, which can include the following:

- ◆ expanding existing recycling, processing, or disposal facilities to handle the increased demand;
- ◆ hauling to intermediate sites and reducing the amount of debris through recycling;
- ◆ siting a temporary storage area at a landfill, vacant lot, etc. for recycling operations; and
- ◆ establishing new recycling, processing facilities.

☐ **STEP 2: DEVELOP CRITERIA TO EVALUATE POTENTIAL SITES¹.**

Consider the following in developing criteria for potential temporary storage sites:

CRITERIA	PURPOSE
Length of storage time	Set up a site for a specific duration. If the site is used for too long a time, residents may start regular dumping, and illegal dumping may become an issue.
Truck size	Smaller trucks require more trips for a given volume of debris which increases the driver's time, fuel cost, maintenance and depreciation cost.
Real estate costs	Take into account the cost for leasing public or private land. In some cases, particularly in areas with high real estate costs, establishing a site may be prohibitive when weighed against the cost to collect and recycle the materials.
Location	<p>A centralized processing and storage site may be a more efficient one as it can reduce transportation, equipment, and handling time, thereby minimizing costs.</p> <p>On the other hand, proximity to residences and businesses may pose a nuisance depending on the type and amount of traffic, noise generated, etc.</p>
Site size	<p>Sufficient area for the processing equipment and for the trucks to turn around in.</p> <p>Sufficient area to keep materials segregated to avoid contamination and to place materials that require special handling and transportation to a more appropriate recycling or disposal site.</p>
Site operations	Determine the types of activities to be conducted at site: storage only, processing, etc.
Site capacity	<p>Estimate the site capacity for projected amounts of materials. This includes the following:</p> <ul style="list-style-type: none"> ◆ amount of incoming materials, length of time they can be stored prior to processing, and site space needed; ◆ amount of outgoing materials that can be stored after processing, length of time, and site space needed.
Condition of materials	Source separate materials at the point of generation and ensure

CRITERIA	PURPOSE
	that they remain separated throughout the collection, transportation, and processing phases. This will reduce contamination of the materials and increase their diversion potential. It also helps minimize problems in processing the materials.
Sites for designated materials	Consider setting up sites that handle certain designated materials only, such as inerts-- concrete, bricks, metal, dirt, etc. since they can pose less of a health and safety threat. This strategy can facilitate the collection and processing of materials.
Equipment needed	The availability of equipment needed, such as graders, skip loaders, tracked vehicles, may dictate some aspects of site choice.
Security and signage	<p>Fence the area to prevent vandalism and illegal dumping. Cordon off nearby streets to discourage nuisance or illegal dumping.</p> <p>Post signage that clearly identifies the temporary storage area, its operating hours, types of materials accepted and prohibited, and contact person.</p>
Ease of accessibility	<p>Single lane unpaved access roads increase cost as a result of delays due to restrictions required to allow loaded and empty trucks to pass. In addition, poor weather conditions may make the access road impassable.</p> <p>Access roads are sufficient in number and size.</p>
Traffic conditions	Hauling over heavily traveled streets and roads also increases labor and equipment costs.
Roadway conditions	Poor roadway conditions, i.e., potholes, unpaved surfaces and deteriorated pavement, will increase maintenance costs as well as operational costs.
Length of haul	Estimate the distance from the disaster area. The longer the haul, the greater time required to reach the temporary storage site. This can mean an increase in the cost for labor and equipment.



STEP 3: IDENTIFY TEMPORARY STORAGE SITES FOR DISASTER DEBRIS

List sites:

Prepare a list of potential temporary storage sites based upon the type and amount of materials projected to be

collected, processing techniques, and transportation constraints.

Check on available public and private sites for use as temporary storage, recycling, or disposal sites. Explore the possibilities of using city/county-owned land, state lands, and private property. Private property will probably be the last resort given the liability associated with this.

Examples:

Examples of sites to consider include the following:

- ◆ recycling facility;
- ◆ landfill;
- ◆ transfer station;
- ◆ vacant lot;
- ◆ corporation yard;
- ◆ parks;
- ◆ parking lot;
- ◆ right-of-way;
- ◆ city/county-owned property; and
- ◆ private property.

Site at existing facility:

It may be more feasible to site a temporary storage area at a facility that has an existing solid waste facilities permit (SWFP), if there is space and if the activity is covered in the facility's existing SWFP. This would preclude the facility's owner/operator from having to modify or revise the SWFP to include this activity. Contact the facility's owner/operator and the Local Enforcement Agency to discuss the possibility of using the facility as a temporary storage area.

☐ **STEP 4: REVIEW EMERGENCY WAIVER OF STANDARDS REGULATIONS**

Purpose: The emergency waiver of standard regulations allows local enforcement agencies to issue emergency waivers to solid waste facility operators upon request. The waiver grants an operator temporary relief from specific state minimum solid waste standards or terms or conditions of the operator's solid waste facilities permit.

Waiver for: The waiver applies to the following:

- ◆ origin of waste;
- ◆ the rate of inflow for storage, transfer, or disposal of waste;
- ◆ the type and moisture content of solid waste;
- ◆ the hours of facility operation; and
- ◆ the storage time before transfer or disposal of wastes, at a solid waste facility.

A waiver can also be granted to an operator for the establishment of a locally-approved temporary transfer or processing site, if authorized by the local enforcement agency.

How to obtain: To obtain a waiver, a solid waste facility operator must submit a written request to the local enforcement agency. The waiver request must at a minimum include the following information:

1. a listing of the existing solid waste facilities permit terms and conditions to be waived in order to facilitate recovery and disposal of disaster debris;
2. a statement of the remaining disposal capacity of the solid waste disposal facility at the time of the request;
3. a description of all facility-related diversion programs and on-site recycling facilities; and,

4. a listing of locally-approved temporary transfer or processing sites to be used to store disaster debris for future reuse or recycling.

Findings:

The local enforcement agency may grant a waiver to an operator during a proclamation of emergency upon making the following findings:

1. the operator applying for the waiver holds a valid solid waste facilities permit;
2. the waiver will not pose a threat to public health and safety of the environment; and,
3. the operator identifies and implements, to the extent feasible, diversion programs to maximize diversion through reuse, recycling, or composting of disaster-related waste.

LEA notification:

Within seven days of receipt of the solid waste facility operator's request for a waiver, the local enforcement agency will notify the operator in writing whether or not the request for waiver has been granted.

Effective period:

If a waiver is granted the effective period of the waiver cannot exceed 120 days unless extended by the local enforcement agency.

Suggestion:

Consult with the local solid waste facilities operator and the Local Enforcement Agency regarding the need for and feasibility of establishing a temporary storage or processing area to handle the disaster debris.

Reference:

Specific emergency waiver of standards requirements are in the California Code of Regulations, Title 14, Division 7, Chapter 3, Article 3, sections 17210 through 17210.9. The regulations are found in Attachment A.

☐ **STEP 5: IDENTIFY THE PERMIT(S)/VARIANCES REQUIRED TO SITE A TEMPORARY STORAGE SITE.**

Identify agencies: Identify the agencies responsible for issuing the permit/variance and the time needed to process them. For example the following agencies may all have some level of permit requirement for temporary storage sites.

Agency	Type of Permit Issued
Local Enforcement Agency	may exempt certain type of facility from requirement to obtain permit; inspects waste hauling vehicles and sites
City/County Planning Department	issues land use permits; zoning changes; ordinances
Air Quality Management District	issues permit on air emissions
Regional Water Quality Control Board	issues waste discharge requirements
Department of Toxic Substances Control	regulates asbestos remediation/disposal, lead and HHW; issues permits for HHW temporary and permanent facilities
Integrated Waste Management Board	Concurs in issuance of a SWFP.
Fire Department	issues permits for storage of materials in piles. permit includes height, width, fire protection necessary on site road access and water storage

Example: The City of Santa Clarita secured a 40-acre site of private land for stockpiling and processing the disaster debris from the Northridge earthquake. The disaster debris was defined as broken concrete, asphalt, block wall, rubble, masonry, cinder block, clay brick, and metals, construction attached to masonry (rebar), scrap metal, and wood waste.

The local permit for the Santa Clarita site is found in Attachment B.

Local authority: A city or county can use its authority to pass local ordinances in order to establish temporary storage sites.

This is one option available in the absence of a requirement to obtain a solid waste facilities permit for the site.

Actions to take:

After reviewing its existing land use ordinances, a jurisdiction can consider taking the following action(s):

- ◆ relax storage requirements at the site;
- ◆ exempt certain discretionary actions from the California Environmental Quality Act; or
- ◆ waive storage standards at a particular site for emergency storage if it is less than X cubic yards, depending on the local conditions.
- ◆ Or, the jurisdiction, through its zoning and land use authority, can establish such temporary storage areas by passing a new ordinance in response to the emergency.

Pre-approved waiver:

Consider the use of a pre-approved waiver in siting temporary storage areas. This is a process whereby a jurisdiction identifies selected sites for use as temporary storage areas and then obtains a permit/waiver for each site in advance of a disaster.

A jurisdiction could activate the permit under certain conditions (such as in the event of a disaster) thereby having immediate access to a temporary storage site for disaster debris. This process can speed up the recovery time by giving the jurisdiction additional time to develop its debris management strategy and programs.

CIWMB tiered permitting:

The CIWMB is undergoing a review of its permitting process and is establishing "tiers" for facilities that will require a permit less than the "full" solid waste facility permit that now is issued through the Local Enforcement Agency and concurred in by the Board.

As this document went to print, the placement of transfer/processing stations into tiers was not complete.

It is advised that a jurisdiction contact its Local Enforcement Agency to determine the permits, if any, required to establish a temporary storage site.

Temporary Storage Sites

For information on the tiered permitting process, contact the CIWMB at 916-255-2453.

☐ **STEP 6: PERFORM AN ENVIRONMENTAL REVIEW OF THE SITE.**

Baseline assessment:

Once a site is selected, perform an environmental assessment on the site before the debris is deposited. This baseline assessment is necessary so that the site can be restored to its original condition after the disaster debris is finally removed and to determine liability in the case of site contamination.

Develop an environmental monitoring plan to include testing for contamination. A jurisdiction should be aware of its liability in storing disaster debris on private land in particular.

Checklist:

Conduct baseline assessment, using a baseline data checklist below:²

Phase	Actions to Take
Before activities begin	<ul style="list-style-type: none"> ◆ take ground or aerial video/photographs ◆ note important features, such as structure, fences, culverts, and landscaping ◆ take random soil samples ◆ take water samples from existing wells ◆ check the site for volatile organic compounds
After activities begin	<ul style="list-style-type: none"> ◆ establish groundwater monitoring wells ◆ take groundwater samples ◆ take spot soil samples at household hazardous waste, ash, and fuel storage areas ◆ take spot soil samples at household hazardous waste, ash, and fuel storage areas
Progressive updates	<ul style="list-style-type: none"> ◆ update videos/photographs ◆ update maps/sketches of site layout ◆ update quality assurance reports, fuel spills, etc. ◆ update quality assurance reports, fuel spills, etc.

Water runoff:

Make note of any nearby surface water, such as lakes, streams, drainage channels, which might receive runoff from the site. A jurisdiction may want to create a berm in those areas to contain runoff from leaving the site and entering waterways. Also consider having water on site (or in tanks) for dust control, when accepting dirt for stockpiling.

☐ **STEP 7: PREPARE A SITE DEVELOPMENT AND OPERATION PLAN.**

Site development plan:

Prepare a Site Development Plan for daily and long-term operations. Haul routes, tipping areas, stockpile locations, and material processing should be coordinated under this plan. Items to be addressed include a description of the site and the activities to be conducted at the site:

Planning considerations:

- ◆ site identification;
- ◆ waste types and volumes to be received;
- ◆ site capacity, projected site life, and end use;
- ◆ vehicles - types and numbers expected;
- ◆ site access plan;
- ◆ enforcement provisions;
- ◆ public information awareness campaign to notify residents and contractors of sites and guidelines for use;

Operational considerations:

- ◆ unloading, loading and stockpiling;
- ◆ access and haul roads;
- ◆ operational difficulties;
- ◆ control of nuisance and health factors;
- ◆ health and safety provisions;
- ◆ general site and health and safety plan;

Recycling and reuse:

- ◆ salvaging and volume reduction activities;
- ◆ materials handling activities; and
- ◆ hazardous waste screening program.

Control of incoming material:

Inspect incoming loads to determine that materials are handled properly and directed to proper stockpile areas. Estimate quantities of incoming materials based on type of haul vehicle and its capacity.

Develop a contingency plan and procedures in the event hazardous waste are found in the incoming waste stream. Segregate hazardous wastes and transfer to a more appropriate recycling or disposal facility.

Segregate materials:

Segregate and store all recoverable materials in consolidated stockpiles in the major categories, such as:

- ◆ green waste;
- ◆ wood debris;
- ◆ aggregates;
- ◆ metals;
- ◆ white goods (refrigerators, washers and dryers, stoves);
- ◆ mixed demolition debris;
- ◆ brown goods: furniture and other bulky waste;
- ◆ plastics; and
- ◆ tires.

Keep materials as free from contamination as possible, as this will increase their diversion potential.

Keep the disaster-related wastes separate from other wastes, as commingling the two waste streams will compromise the recycling program's ability to receive FEMA reimbursement.

List prohibited materials.

White goods:

Segregate white goods from other metals because of potential presence of waste oils and coolants (chloroflourocarbons). State law prohibits the landfilling of white goods if salvaging is determined feasible by the solid waste facility operator.

Processing:

A number of processing functions will need to be performed to sort stockpiled materials, to store and handle them during processing, and to prepare them to meet market specifications.

The various materials categories will require different levels of processing. As a result, the equipment and technologies employed will change.

Refer to chapter 3, Debris Management Programs, for a discussion of processing techniques and equipment.

The availability of different types of equipment needed, i.e., graders, skip loaders, tracked vehicles, etc. may dictate some aspects of site choice.

☐ **STEP 8: PREPARE INSPECTION AND SITE MANAGEMENT GUIDELINES³**

Site management: Following are some suggestions of things to keep in mind when establishing a site:

- ◆ **Disaster Debris Manager.** Designate a city or county staff member as the site's disaster debris manager.

The disaster debris manager should serve as the overall supervisor of the site inspection operation and should coordinate storage, recycling, or disposal efforts with the affected local and state agencies, processors, recyclers, and landfill owners or operators.

- ◆ **Point of payment verification.** When unit price contracts are being utilized in long-term operations, the recycling or disposal site becomes the primary point for quantity verification utilized for payment.

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Unit price basis	the establishment of well organized and managed inspection stations near the entrance of the site
Weight basis	to make provisions for weighing trucks as they enter the site
cubic yard basis	to construct a stand or stands that allow for the inspection of loaded trucks

The number of inspection stands utilized at a site will be dictated by:

- ◆ the volume of debris to be removed,
- ◆ the number of access roads or lanes available, and
- ◆ the size of the site.

Weight tickets:

Develop a tracking system for weight or load tickets if they are used for payment verification.

Treat weight tickets as accountable forms. Track what forms have been issued, how many have been issued, and to whom. One way to do this is to have them sequentially pre-numbered.

☐ **STEP 9: DEVELOP A SITE RESTORATION PLAN.**

Restoration plan:

It is important to develop a restoration plan for each temporary storage site that addresses:

- ◆ processing and removal of materials from the site;
- ◆ an environmental monitoring plan to include baseline monitoring and testing for contamination; and
- ◆ restoration of the site to its original condition. Note: If private land, final restoration must be acceptable to the landowner.

In this way, liability for site contamination can be mitigated by having a baseline environmental assessment performed before disaster debris is deposited at the site.

ATTACHMENTS

- A. Emergency Waiver of Standards Regulations.
- B. City of Santa Clarita permit for temporary storage site.

REFERENCES

- ◆ *Debris Management Course, Reference Manual*, Emergency Management Institute, National Emergency Training Center, FEMA.
- ◆ *Permit Desk Manual*, CIWMB.
- ◆ *Management of Debris Generated by Hurricane Iniki, Solid Waste Planning and Engineering for the County of Kauai, Task Reports 12/11/92.*
- ◆ California Code of Regulations, Title 14, Division 7, Chapter 3, Article 3, sections 17210 through 17210.9

ENDNOTES

1. Debris Removal Guidelines for State and Local Governments, FEMA, DAI-15 (Draft) December 1991, Modified.
2. Debris Management Course, Reference Manual, Emergency Management Institute, National Emergency Training Center, FEMA, pg. 38-39.
3. Debris Removal Guidelines for State and Local Governments, FEMA, DAP-15 (Draft) December 1991, Modified.

☐ **STEP 9: DEVELOP A SITE RESTORATION PLAN.**

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CHECKLIST

CHAPTER 4 TEMPORARY STORAGE SITES

☐ STEP 1: DETERMINE NEED FOR FACILITIES

- ◆ Review preliminary damage survey results.
- ◆ Estimate types and quantities of debris to be handled.
- ◆ Determine if existing facilities have capacity for expected volumes and types of debris.
- ◆ Consider options to increase capacity:
 - ◆ expand existing facilities;
 - ◆ haul to intermediate sites and reduce through recycling;
 - ◆ establish new recycling, processing facilities; and
 - ◆ site temporary storage area.

☐ STEP 2: DEVELOP CRITERIA TO EVALUATE POTENTIAL SITES

- ◆ length of storage time;
- ◆ real estate costs;
- ◆ truck size;
- ◆ location;
- ◆ site operations;
- ◆ sufficient capacity;
- ◆ collection;
- ◆ security and signage;
- ◆ ease of accessibility;
- ◆ traffic conditions;
- ◆ roadway condition;
- ◆ length of haul; and
- ◆ equipment needed.



STEP 3: IDENTIFY TEMPORARY STORAGE SITES

- ◆ Prepare list of potential sites using criteria developed in step 2
- ◆ Consider range of sites:
 - ◆ recycling facility;
 - ◆ landfill;
 - ◆ transfer station;
 - ◆ vacant lot;
 - ◆ corporation yard;
 - ◆ parks;
 - ◆ parking lot;
 - ◆ right-of-way;
 - ◆ city/county-owned land; and
 - ◆ private property.



STEP 4: REVIEW EMERGENCY WAIVER OF STANDARDS REGULATIONS

- ◆ Local Enforcement Agency (LEA) can issue "emergency waiver of standards" to solid waste facilities operator upon request for:
 - ◆ temporary relief from specific state minimum solid waste standards or terms or conditions of solid waste facilities permit;
 - ◆ establish a locally-approved temporary transfer or processing site.
- ◆ Solid waste facility operator submits written request to LEA.
- ◆ LEA may grant a waiver upon making findings:
 - ◆ operator holds a valid solid waste facilities permit;
 - ◆ waiver will not pose a threat to public health and safety of the environment; and
 - ◆ operator identifies and implements, to the extent feasible, diversion programs to maximize diversion through reuse, recycling, or composting of disaster-related waste.
- ◆ LEA grants waiver for 120 days.



STEP 5: IDENTIFY PERMITS OR VARIANCES

- ◆ Identify agencies responsible for issuing permit/variance.
- ◆ Determine time needed to process permit application.
- ◆ Use local authority to designate temporary storage areas.
- ◆ Consider developing pre-approved waiver to site temporary storage areas.



STEP 6: PERFORM ENVIRONMENTAL REVIEW OF SITE

- ◆ Conduct baseline assessment, using baseline data checklist below:
 - ◆ Before activities begin
 - ◆ take ground or aerial video/photographs;
 - ◆ note important features, such as structure; fences, culverts, and landscaping;
 - ◆ take random soil samples;
 - ◆ take water samples from existing wells; and
 - ◆ check the site for volatile organic compounds.
 - ◆ After activities begin
 - ◆ establish groundwater monitoring wells;
 - ◆ take groundwater samples; and
 - ◆ take spot soil samples at household hazardous waste, ash, and fuel storage areas.
 - ◆ Progressive updates
 - ◆ update videos/photographs;
 - ◆ update maps/sketches of site layout; and
 - ◆ update quality assurance reports, fuel spills, etc.
- ◆ Develop environmental monitoring plan.
- ◆ If using private property, have landowner sign liability waiver.
- ◆ Make note of any nearby surface water which might receive runoff from the site.



STEP 7: PREPARE A SITE DEVELOPMENT AND OPERATION PLAN

- ◆ Write Site Development Plan for daily and long-term operations.
- ◆ Inspect incoming loads.
- ◆ Develop contingency plan and procedures for hazardous wastes, if found.
- ◆ Segregate materials in consolidated stockpiles.
- ◆ Keep non-disaster waste separate from disaster waste.
- ◆ Identify processing techniques and equipment to be used based upon materials to be collected.



STEP 8: PREPARE INSPECTION AND SITE MANAGEMENT GUIDELINES

- ◆ Designate a disaster debris manager.
- ◆ Establish inspection stands at site, depending on basis for payment .
- ◆ Develop tracking system for weight tickets, if used as verification for payment.



STEP 9: PREPARE A SITE RESTORATION PLAN

- ◆ Identify the processing and removal of materials from the site.
- ◆ Develop environmental monitoring plan to include baseline monitoring and testing for contamination.
- ◆ Restore site to its original condition.